Sanitized Copy Approved for Release 2011/06/29 : CIA-RDP80-00809A000600200240-4

CLASSIFICATION RESTRICTED

CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

REPORT

STAT

RESTRICTED

COUNTRY	USSR
SUBJECT	Immunology
PLACE ACQUIRED	USSR
DATE OF INFORMATION	1947
DATE DISTR.	16 August 1948
NO. OF PAGES	4
NO. OF ENCLS. (LISTED BELOW)	
SUPPLEMENT TO REPORT NO.	

STAT

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF THE ESPIONAGE ACT 50 U.S.C. 31 AND 32, AS AMENDED. ITS TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY MANNER TO AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW. REPRODUCTION OF THIS FORM IS PROHIBITED. HOWEVER INFORMATION CONTAINED IN COPY OF THIS FORM MAY BE UTILIZED AS DEEMED NECESSARY BY THE RECEIVING AGENCY.

THIS IS UNEVALUATED INFORMATION FOR THE RESEARCH USE OF TRAINED INTELLIGENCE ANALYSTS

SOURCE Russian periodical, Byulleten' Eksperimental'noy Biologii i Meditsiny, Vol XXIV, No 4, 1947. (FDB Por Abs 24263 -- Translation specifically requested.)

SUITABILITY OF GUINEA PIGS FOR IMMUNOLOGICAL EXPERIMENTS ON HYDROPHOBIA

E. M. Pugach and O. M. Rychevn
Pasteur Dept
Inst of Epidemiol and Microbiol
Odessa

Submitted 26 May 1947

In recent years spotted guinea pigs have been used by many authors as laboratory animals for the propagation of a number of contagions (glanders, tetanus, diphtheria, hydrophobia, smallpox, exanthematous typhus, and others). By means of these works it has been established that guinea pigs were in certain instances valuable laboratory animals, capable of replacing the usual smaller vest animals.

In our previous works (Palavandov, Serebrennaya, and Pugach; Palavandov, Pugach, and Divgun) we demonstrated that guinea pigs were very susceptible to hydrophobia, and were not inferior to other laboratory animals in this respect. Guinea pigs are especially valuable in the study of hydrophobia owing to their capacity of forming Negri corpuscles upon infection by a fixed virus.

Referring the utilization of guinea pigs for immunological investigations, a number of works are known to us (Voynberg and Jolmr'; Voyberg in cooperation with Lekhtman, Gurko, and Brutman); in these the capacity of guinea pigs to produce antibodies (agglutinins, precipitins), and also their resistibility to general anaphylactic reaction with complete absence of free complement in the serum has been established.

The suitability of guinea pigs for immunological work on hydrophobia has not yet been studied. The study of this question is the purpose of our work.

CLASSIFICATION RESTRICTED

STATE	x	NAVY		NSRB		DISTRIBUTION													
ARMY	x	AIR																	

RESTRICTED

Sanitized Copy Approved for Release 2011/06/29 : CIA-RDP80-00809A000600200240-4

Sanitized Copy Approved for Release 2011/06/29 : CIA-RDP80-00809A000600200240-4

STAT

Two series of experiments were set up. In each series the capability of immunized guinea pigs to produce rabicidal antibodies and to develop a stable immunity against hydrophobia was studied. The experiments were carried out during a summer period (May-July).

At the same time immunization (with Fermi vaccine) of two groups of animals was begun: the first group, of 25 guinea pigs; and the second, the control group, of 15 rabbits. The animals were immunized in the course of 25 days, and were given 18 injections during this time. The dose for guinea pigs in each injection was 0.06 cc; for rabbits, 0.5 cc.

Two weeks after the completion of immunization, blood was aspirated from the heart of the guinea pigs and from the ear vein of the rabbits, and experiments were set up for the determination of the rabicidity of the serum according to the method of Kraus, Keller, and Clermont.

For this purpose, sera of immunized guinea pigs were mixed in various amounts; then dilutions of 1:3, 1:5, and 1:10 were prepared from this mixture of sera, and were mixed again in equal parts with a one percent fixed virus as a result of which dilutions of 1:6, 1:10, and 1:20 were obtained. The same was also done with the sera of control rabbits. These dilutions were kept for 24 hours at room temperature and then injected subdurally into rabbits.

As a result, all 22 rabbits, injected with the fixed virus mixed with the sera of immunized guinea pigs (in dilutions of 1:6, 1:10, and 1:20), died of rabies. Of the rabbits injected with the fixed virus mixed with the sera of immunized rabbits, in those injected with serum dilution of 1:6, one rabbit out of five died of rabies; with a dilution of 1:10 seven out of ten animals and with the dilution of 1:20, two out of seven died -- that is, in this group of 22 rabbits, ten died of rabies.

In the control group all 15 animals (five guinea pigs and ten rabbits) injected with the mixture of fixed virus and the sera of nonimmunized animals died of rabies (see appended table).

Thus, the sera of immunized guinea pigs compared with the sera of immunized (control) rabbits in these experiments did not possess expressed rabicidal properties.

A month after the completion of the immunization, experiments were made to study the stability of immunity (by means of injection with lethal dose of fixed virus).

All immunized guinea pigs and rabbits remaining alive were subdurally injected with one lethal dose of our fixed virus (0.2 cc of medulla oblongata tissue in a dilution of 1:10,000).

Out of ten guinea pigs, eight died of rabies; out of 12 rabbits, four died. In the control group all unimmunized guinea pigs (6) and rabbits (3) died of rabies (see appended table).

In the experiments carried out it was evident that, in addition to the insufficient development of rabicidal antibodies, guinea pigs were significantly inferior to rabbits in the capability to develop immunity. Presuming that such unfavorable results of the experiments with guinea pigs possibly were due to an insufficient dosage of vaccine employed for their immunization (0.06 cc), we decided to repeat the experiment, using larger immunizing doses, 0.5 cc for guinea pigs and 2 cc for rabbits.

Twenty-five guinea pigs and 15 rabbits were thus immunized at one time.

Sanitized Copy Approved for Release 2011/06/29 : CIA-RDP80-00809A000600200240-4

Sanitized Copy Approved for Release 2011/06/29 : CIA-RDP80-00809A000600200240-4

STAT

The number of injections was the same as in the first series of experiments. Two weeks after the completion of immunization, experiments were carried out to determine the rabicidity of the sera.

Out of 19 rabbits injected with the mixture of fixed virus and sera of immunized guinea pigs, five animals became ill with rabies; out of 22 rabbits injected with a mixture of fixed virus and the sera of immunized rabbits, eight died of rabies. In the control group all ten animals (five rabbits and five guinea pigs) injected with a mixture of virus and normal sera (nonimmunized animals) died of rabies (see appended table).

A month after the completion of the immunization, experiments in survival were set up: out of 16 immunized guinea pigs subdurally injected with one lethal dose of fixed virus, 12 died of rabies; and out of 12 immunized rabbits, three died. In the control group all nonimmunized guinea pigs and rabbits (12) died of rabies from subdural infection (see appended table).

Although in the last experiment somewhat better results were obtained in the production of rabicidal antibodies in guinea pigs, nevertheless in the stability of the immunity developed, guinea pigs were significantly inferior to rabbits according to both the first and second series of experiments.

[Appended table follows.]

Sanitized Copy Approved for Release 2011/06/29 : CIA-RDP80-00809A000600200240-4

Sanitized Copy Approved for Release 2011/06/29 : CIA-RDP80-00809A000600200240-4

RESTRICTED

Animal	No of Immunized Animals	Dilution of Serum	Rabicidity of Serum: No of Injected Animals	Rabicidity of Serum: No Died With Rabies	Mortality: No of Immunized Animals Injected With a Lethal Dose	Mortality: No Died with Rabies
First Series of Experiments						
Guinea Pigs	25	1:6	5	5	10	8
		1:10	9	9	"	"
		1:20	6	6	"	"
Rabbits	15	1:6	5		12	4
		1:10	10	7	"	"
		1:20	7	2	"	"
Rabbits	Nonimmunized	1:10	10	10	3	3
Guinea Pigs	Nonimmunized	1:10	5	5	5	5
Second Series of Experiments						
Guinea Pigs	25	1:10	13	5	16	12
Rabbits	15	1:10	22	8	12	3
Rabbits	Nonimmunized	1:10	5	5	6	6
Guinea Pigs			5	5	6	6

- END -

RESTRICTED

Sanitized Copy Approved for Release 2011/06/29 : CIA-RDP80-00809A000600200240-4